
STATUS OF THE RESOURCE

*A question of survival, a
need for immediate action...*



PHOTO: PETER PALMQUIST COLLECTION

*Salmon and steelhead trout are part of
every Californian's legacy.*

Early California — A time of abundance and balance

As with all living things, it has always been a question of survival for salmon and steelhead trout. These native fishes evolved with the California landscape. Their complex life histories reflect the area's seasons, streams, land forms and natural variations. *Their survival is tied inextricably to water.*



PHOTO: PETER PALMQUIST COLLECTION

Salmon and steelhead reach maturity at sea and return to the rivers to spawn. Young king salmon spend the early weeks of their inland lives in rivers and streams, move quickly to coastal estuaries and then, to the ocean. Silver salmon and steelhead trout move downstream more slowly, taking at least a year to reach saltwater.

The upstream migrations of mature fish and the downstream migrations of their young were determined ages ago by the pattern of California's winter rains and springtime snow-melts, by the chilling of streams in the winter months and their warming during the spring. Everything is tied to these cycles. The fertility of the eggs carried within the females depends upon the temperatures of the streams. The vitality of the young fish hinges on the sufficiency of their food — aquatic insects and other small creatures — which is determined, in turn, by stream temperatures and other factors.

In the course of California's natural evolution, variability in stream flow and water temperature patterns shaped the differences in salmon and steelhead. Fish with the strength to travel far upstream, to the cool headwaters, could reproduce successfully

even when the rains arrived late. Young fish insensitive to rising springtime temperatures might perish in early-season droughts, while those with keener responses would move safely downstream to complete their life cycle.

In this way, different regions of California evolved different races' of fish, which entered the

streams at different times to spawn. A catastrophe might eliminate one spawning run, but nature had prepared another run, days or weeks behind it, to fill that special niche reserved for salmon and steelhead trout.

In this niche, salmon and steelhead are critical to the ongoing balance of their ecosystem. Aquatic insects and larvae provide food for salmon and steelhead, and these fishes, in turn, become sustenance for animal life ranging from caddis flies to bears. Salmon and steelhead are nature's harbingers. *If these fishes are threatened, the health of their ecosystem is equally at risk.*

Salmon and steelhead were also important to California's Native Americans, who used them for food and ritual purposes. Dried fish and shells were common commodities along coastal and interior trade routes. The use of fish weirs, spears, gill and dip nets are well-documented Indian traditions.

When Europeans arrived on the California frontier, they were fascinated by the great runs of spawning salmon and steelhead. Travelers attempting stream crossings re-

ported that their horses were frightened out of control by huge, aggressive fish intent on protecting their streambed spawning sites.

The natural balance is disrupted

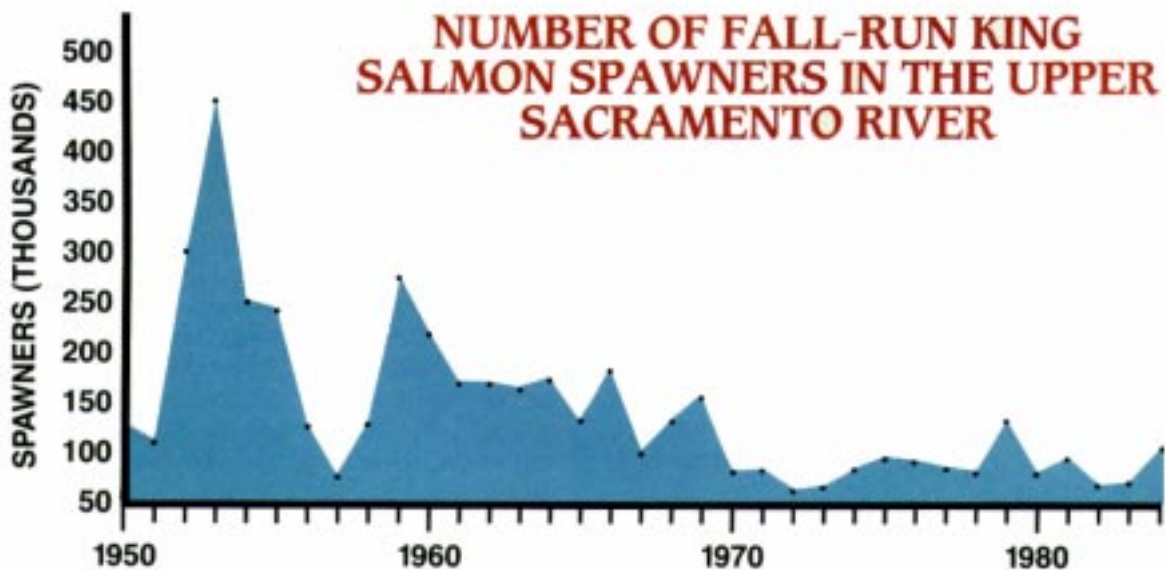
The first great threats to this resource came with the discovery of gold. Panning for the precious metal gave way to hydraulic mining, which permanently destroyed miles of critical spawning grounds. As modern California emerged in the late 1800's, salmon and steelhead began to face new, seemingly insurmountable problems in their age-old struggle to survive.

By 1881, increasing numbers of fish were being harvested to feed the state's burgeoning population and to supply the salmon canneries and salteries along the north coast and the San Francisco Bay area. State officials grew concerned that not enough salmon and steelhead were able to spawn. In response, they banned commercial netting on Saturdays and Sundays so that some fish might reach their home stream spawning grounds. The ensuing confrontations between fishermen and the state fish patrols,

described so colorfully by California author Jack London, characterized early salmon and steelhead conservation efforts.

During the 1930's and 1940's, efforts to conserve fish through harvest regulations were overwhelmed by the devastating effects of economic growth and development. Californians tamed and cultivated the countryside, harnessed rivers for crop irrigation and hydroelectric power, and developed land for roads, homes and recreation. Huge dams were constructed, vast tracts of timber were removed and whole mountains were pushed aside for highways.

Today, the cumulative effect of these activities threatens to end the salmon and steel-heads ancient struggle to survive. Not long ago, California salmon and steelhead resources seemed limitless. Now, those fish populations have withered and some have become extinct. California must aggressively confront the problems challenging salmon and steelhead survival. It is not too late to restore and protect this natural heritage. *The time to act is now*



(R.R. Reisenbichler. See Selected References.)

FINDINGS AND RECOMMENDATIONS: STATUS OF THE RESOURCE

- Salmon and steelhead runs have declined precipitously throughout the state in recent decades. Since 1945, king salmon runs on the San Joaquin River have dropped by 90% and a similar decrease has occurred on the Trinity River in the last 20 years. Most other rivers have seen a substantial deterioration of king salmon runs. Similar declines have affected most north coast steelhead runs. Silver salmon runs have also fallen by 80% to 90% of the 1940's level.

- Total production of king salmon now averages only one million adult fish annually, according to Department of Fish and Game records. Statewide production of steelhead has dropped to just 240,000. Silver salmon production is approximately 100,000.

- The way land is used today directly affects the quantity and quality of water available for salmon and steelhead. Agricultural diversions leave inadequate stream flow for fish. Water releases from reservoirs alter natural river temperatures. Vital fisheries habitat is damaged or lost due to logging, grazing and mining practices, land development, road construction and other activities. If California's population increases from 27 million to the 35 million projected by the year 2010, plans must be made now to *protect* the fisheries from harmful land use activities and to *enhance* this resource to meet the needs of the growing population.

- Advisory Committee investigations indicate that recovery of fisheries production levels is possible; a reasonable goal would be to double statewide production by 2010. This would be accomplished by improving in-stream production and eliminating manmade factors that kill juvenile fish. Doubling statewide production would yield two million

king salmon, approximately 500,000 steelhead and about 200,000 silver salmon. This doubling would strengthen the state's economy by generating 8,000 new jobs and increasing business revenues by \$150 million a year.

ACTION: The Legislature should declare the policy of the state to restore and protect the salmon and steelhead resources. The policy should prohibit any further loss of fisheries habitat, emphasize the improvement of in-stream habitat and eliminate man-made factors that kill juvenile fish. It should regard fish production as a co-equal objective of water development and land management, rather than as a constraint upon development—as it is now perceived.

(See text SB-2261, page 53.)

ACTION: The Legislature should declare it state policy to double the present levels of salmon and steelhead trout production by the year 2010, following the guidelines articulated in SB-2261.

ACTION: SB-2261 now provides \$125,000 to begin development of the initial elements of the restoration program. The Legislature should also provide for the necessary long-term funding and staffing needed to double salmon and steelhead stocks.

- The Sacramento River once provided four strong seasonal runs of spawning king salmon. All four runs have declined and the winter-run has fallen precipitously from 40,000 to 2,000 spawners in the past 20 years. Only the early fall-run is still substantial, and its spawning numbers have fallen – 425,000 (1959) to 185,000 (1987). Consistent with the salmon trends, steelhead spawning in the upper Sacramento River has

dropped from 17,500 to 2,000 during the past 20 years. Because of these sharp declines in natural spawning due to dams, diversions and the resulting poor stream flows, the American Fisheries Society (an organization of fisheries professionals) has petitioned the Secretary of Commerce to list the winter-run king salmon as "threatened" under provisions of the federal Endangered Species Act. If listed, all federal agencies would be obligated, by law, to assure that their actions would not jeopardize the winter-run. Regardless of whether this listing occurs, the respective agencies *must* be required to implement the 10-point program they willingly adopted in 1986.

ACTION: The Legislature should memorialize Congress to direct the Secretaries of Interior and Commerce to fully implement the 10-point program already adopted by the

respective agencies. Of these points, the following actions must occur immediately:

- 1) Lift the gates of the Red Bluff diversion dam during the months of peak spawning migration to provide spawners access to the upper river;
- 2) Fund the new winter-run facility planned for Coleman National Fish Hatchery to handle increased spawning;
- 3) Install a permanent temperature control device at Shasta Dam to prevent releases of warm water into the Sacramento River during critical stages of the salmon life cycle; and
- 4) Similarly direct the Environmental Protection Agency to expedite its efforts to correct the toxic metals problems occurring at Iron Mountain Mine on Spring Creek.



PHOTO: BUREAU OF RECLAMATION

THE STATUS OF THE RESOURCE

The Central Valley:

Salmon and steelhead survival has deteriorated due to inadequate stream flow provisions for fish life. Stream flow has been altered drastically by state and federal irrigation projects, which are supported by decades of laws that promote water diversion. The Department of Fish and Game manages the fisheries resource for which water is so vital, but it has no direct control over the allocation of stream flow.

Seventy-five percent (75%) of California's present instream salmon production and half (50%) of the state's remaining steelhead are now at risk because of inadequate stream flow provisions in the Sacramento-San Joaquin rivers Delta and the Trinity River. Testimony from the state's 1987 Bay Delta water rights hearings emphasized that too little water has been allocated for the survival of salmon and steelhead trout migrating through the San Francisco Bay estuary. Improved Delta outflow standards are needed not only for salmon and steelhead, but also for the protection of striped bass and maintenance of the food chain in the estuary.

Northwestern California:

The north coast region, noted for its highly unstable soils, has experienced 80% declines in both salmon and steelhead trout stocks since 1954. Stream flow and water quality have both been degraded by logging, gravel mining, grazing, irrigation diversions, road construction and land development projects. Here, too, the Department of Fish and Game attempts to protect the fishery resource but has little control over damaging land use practices in areas that border and affect streams. This critical stream and upland habitat is controlled by many state and federal agencies, corporations and individual landowners. Coordinated planning among these groups is limited.

The Central and Southern California Coast:

Silver salmon historically spawned in streams as far south as Monterey Bay, steelhead trout in streams as far south as Mexico! The exploitation of coastal streams for irrigation and domestic water supplies has severely reduced the number of streams that still support *annual* salmon or steelhead spawning runs. One of the largest annual steelhead runs in the area occurs in the Carmel River, which has plunged from 20,000 fish 60 years ago to fewer than 2,000 today.

Despite their remnant nature, the salmon and steelhead survivors along the central and southern coast are attracting growing public concern. Fisheries restoration efforts are now underway in the Monterey Bay streams, Carmel River, San Luis Obispo Creek, Santa Ynez River, Gaviota Creek and even Malibu Creek in Los Angeles County. There are many more streams in the region, *as far south as San Diego County* where fish populations can be restored. Sensitivity toward the environment has increased dramatically, for the same communities which exploited coastal streams for their growth are now populated by citizen groups that are working successfully to restore their local salmon and steelhead fisheries.

NOTE: Specific recommendations Regarding these areas will appear in the following sections.
